USER'S MANUAL

SINGLE ROOM AIR HANDLING UNITS WITH HEAT RECOVERY

Micra 60

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INTRODUCTION

This user's manual contains technical description, technical data, operation and mounting guidelines for the single room air handling unit with heat recovery MICRA 60, hereinafter referred as the unit.

USE

The unit is designed to save thermal energy by means of heat recovery and is one of the energy saving components used for buildings and premises.

The unit with heat recovery is designed to provide permanent controlled air exchange in houses, offices, hotels, cafés, meeting halls and other mechanically ventilated domestic and public premises. The unit is equipped with a heat exchanger that enables extract air heat recovery to warm up supply air flow.

The unit is designed for wall mounting.

The unit is designed for continuous operation always connected to power mains.

Transported medium must not contain flammable, explosive and fibrous substances, chemical vapours, coarse dust particles, soot, oils, poisonous substances, pathogens and other substances that provoke formation of harmful medium.

Warning!

The unit is not designed to be used by children, physically or mentally disabled persons, persons with sensory disorder, persons with no appropriate life experience and/or expertise unless they are properly instructed about the device use or supervised by the person in charge for their safety.

The unit may be operated by duly qualified experts after appropriate instructions.

Install the unit in places to prevent unwanted access of children.

DELIVERY SET

- Micra 60 unit - 1 item;
- fasteners;
- user's manual - 1 item;
- master plate - 1 item;
- packing box - 1 item.

MAIN PARAMETERS

The unit is designed for indoor application at the ambient temperature ranging from +1°C (+33.8° F) to +40°C (+104° F) and relative humidity up to 80% at 25°C (77°F).

The unit is designed for transportation of air with the temperature from -20 °C (-4 °F) up to +50 °C (122° F).

DESIGNATION KEY STRUCTURE

VENTS MICRA 60

Air capacity [m³/h]

Unit name

MAIN TECHNICAL DATA AND DIMENSIONS

The unit designation, overall dimensions and technical data are stated in fig. 1 and in table 1.

Table 1

Mode	Voltage [V]	Power [W]	Current [A]	Air capacity [m³/h] (CFM)	RPM [min⁻¹]	Noise level [dBA] (Sones)	IP
1	100-240 V; 50-60 Hz	4,2	0,02	30(17,7)	1165	22(0,38)	22
2		9,6	0,04	45 (26,5)	1720	25 (0,42)	
3		15,4	0,07	60(35,3)	2685	29 (1,0)	

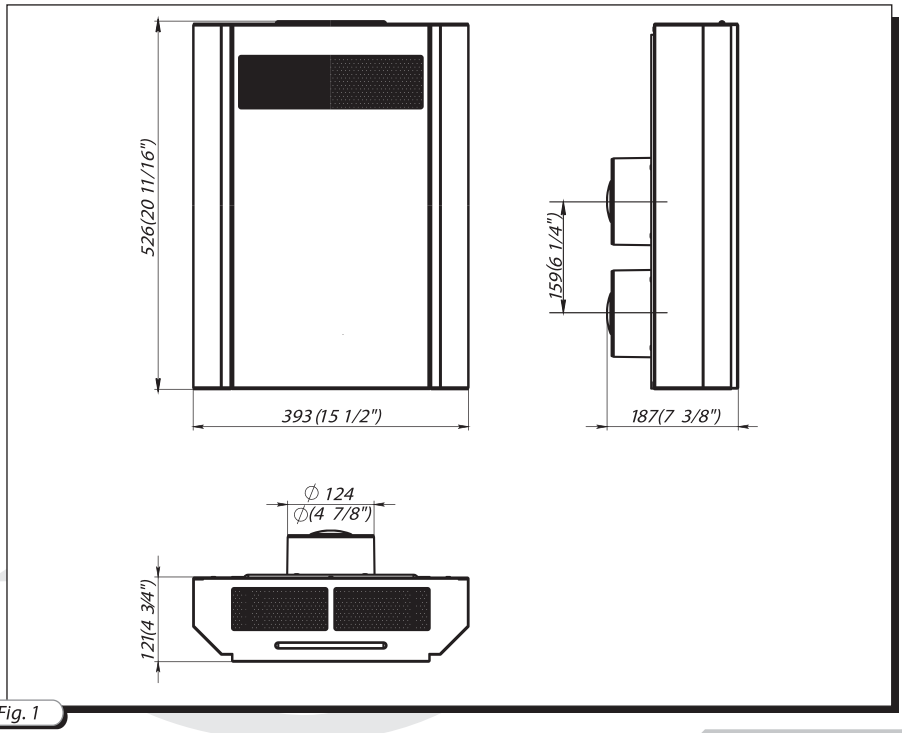

Fig. 1

The unit design is permanently updated, so some models can slightly differ from that one described in this manual.

SAFETY REQUIREMENTS

While operating and mounting the unit consider the requirements of the present operation manual as well as general requirements of all applicable local and national building, electrical and fire safety codes and standards.

Connection of the unit to power mains by duly qualified electricians only!

1. Before connecting the unit to power mains make sure that the unit is free of any visible damages or any foreign objects inside the casing that can damage the impeller blades.

2. Disconnect the unit from power mains before any servicing, maintenance or installation operations! Make sure that the impeller does not rotate!

3. Unit protection against access to hazardous parts and ingress of solid objects IP22.

WARNING: Use the unit fro the purpose intended. Do not use the unit for handling of explosive and fire-hazardous air and dust mixture. Take steps to prevent back draft from gas- or open flame devices.

DESIGN AND OPERATING LOGIC

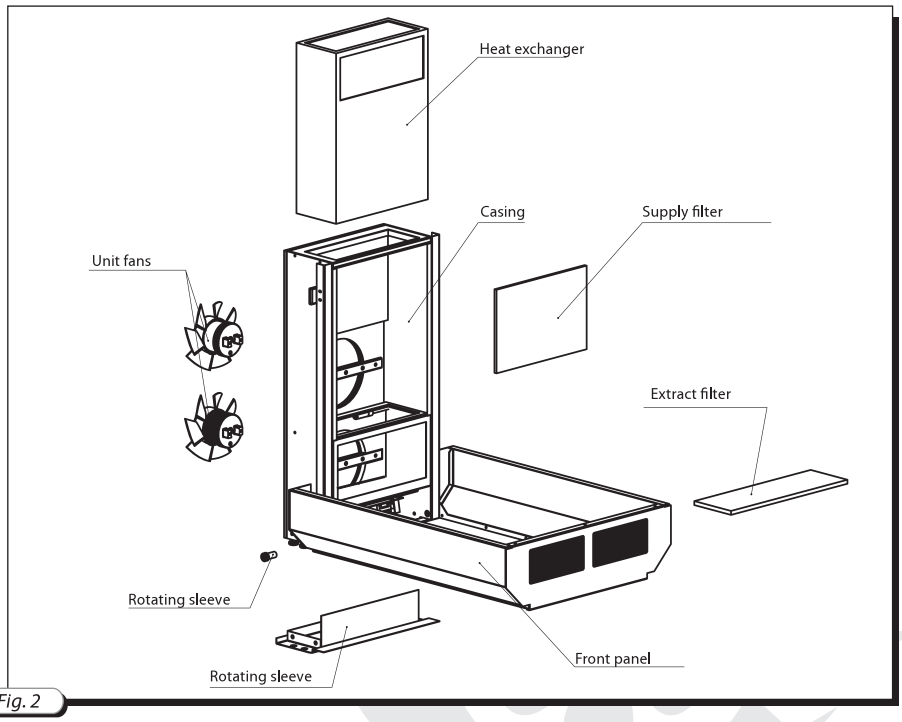

Fig. 2

The unit design consists of a metal polymer coated casing internally filled with heat- and sound-insulated casing. The casing incorporates a plate metal heat exchanger, supply and extract fan.

The front panel is installed on the rotating sleeve to enable the panel opening and service access to the unit internals. The front panel is equipped with a decorative stainless steel plate. The protecting technological panel on the casing bottom is provided for accessing to the unit control block.

The replaceable G4 filter between the fan and the heat exchanger in the supply block of the unit (refer fig. 3) ensures supply of filtered fresh air to the room. The second replaceable filter is located in the upper part of the front panel. The unit has an easy-detachable front panel for accessing the filters.

Unit operating logic:

Sensible heat energy contained in the extract air flow is transferred in the unit heat exchanger to the cold intake air flow from outside to warm it up. Air flows in both directions are purified with G4 filters. The temperature sensor is installed in the section downstream of the heat exchanger upstream of the extract fan and is used for freezing protection of the unit. If the exhaust temperature drops below +3°C (+37,4°C) the heat exchanger freezing danger on supply side appears. In this case the supply fan is turned off and the unit operates in exhaust mode which enables the heat exchanger warming up with extract air. After freezing danger is off the unit reverts to the standard operation mode.

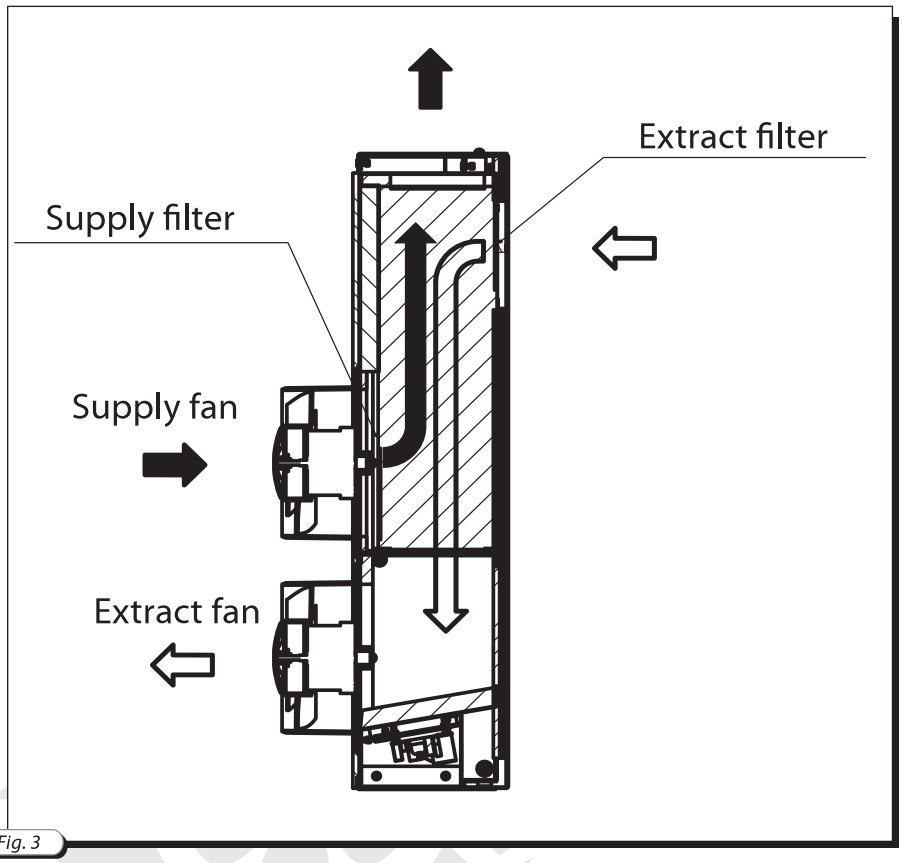

Fig. 3

MOUNTING AND SET-UP

For the unit mounting use a master plate (included into delivery set, fig. 4). For the further unit mounting please make sure to have two air ducts of required length or one of mounting sets (MK1 Micra 60 or MK2 Micra 60).

The mounting set MK1 Micra 60 is specially designed for mounting of the unit at general construction stage. It includes two plastic air ducts of 500 mm length and two master plates for matching holes on inner and outer wall sides.

The mounting set MK2 Micra 60 is specially designed for mounting of the unit in a ready-built premise. It includes two plastic air ducts of 500 mm length, a master plate for matching holes and an outer ventilation hood NB Micra 60 that prevents ingress of foreign objects inside the unit. If the building's wall thickness is above 500 mm (19 11/16"), please prepare two Ø 125 mm air ducts of required length.

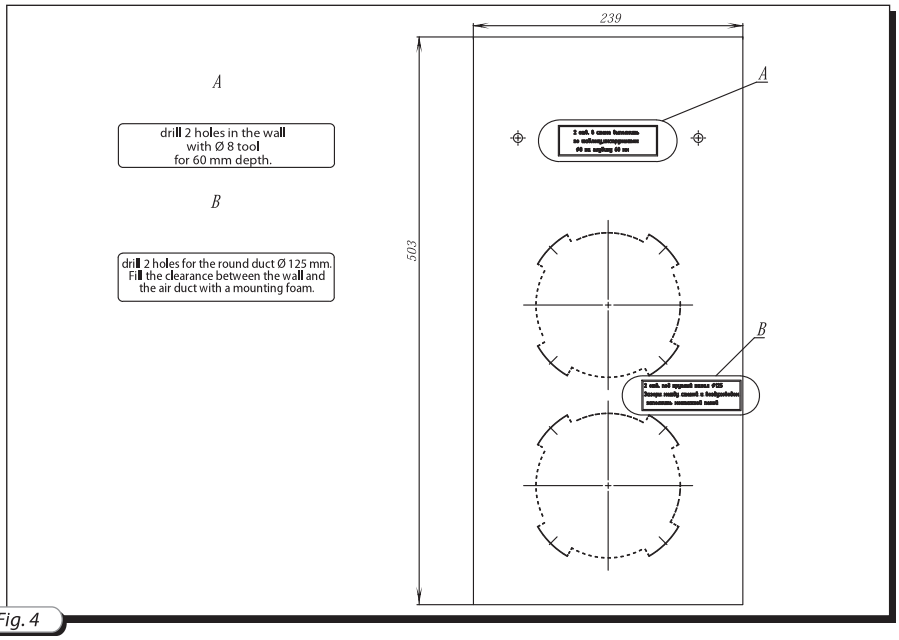

Fig. 4

Unit mounting sequence:

1. Fix the master plate (included into delivery set) on the wall with a sealing tape on required level, fig. 5.

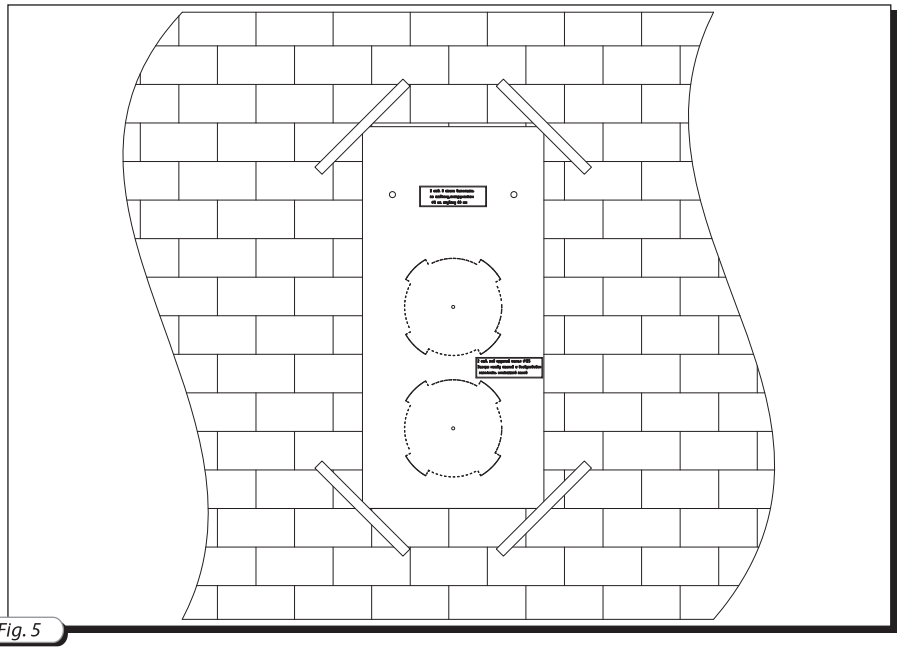

Fig. 5

2. Use a master plate to mark two Ø 130 (5 1/8") mm holes for the air ducts and two Ø 8 mm (0,32") holes for the dowels to fasten the unit.

3. Remove the master plate and drill through holes for the air ducts and the holes of 60 mm length (2,38") for the dowels. Drill the holes sloped down by 2-3°. Then insert the dowels (included into delivery set) into respective holes.

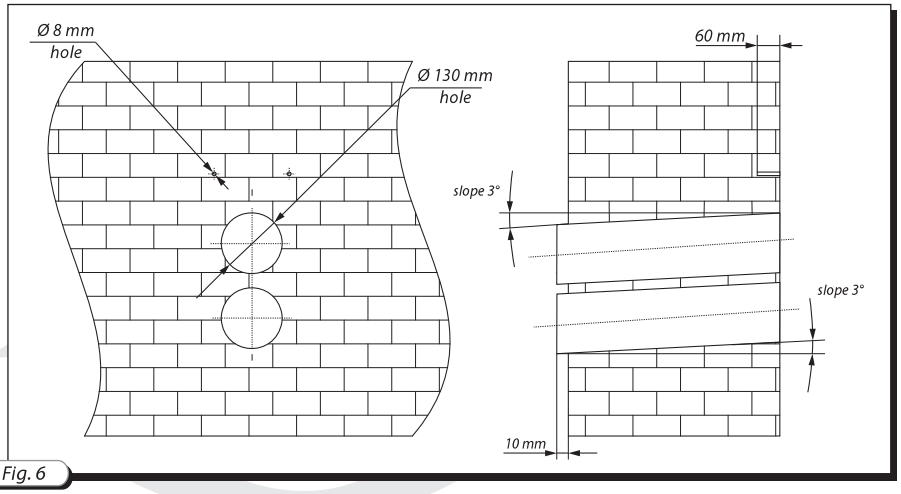

Fig. 6

4. Re-install the master plate with a sealing tape back. If you use either MK1 Micra 60 or MK2 Micra 60 set, fix the second master plate on outer wall side to align the air ducts with respect to each other. Fix the second master plate somewhat lower to ensure the minimum required slope by 3°. Before mounting the mater plate remove the perforated slots for the air ducts.

5. Install the air ducts into the master plate holes designed for the air ducts, fig. 6 and seal those with a mounting foam through the technological openings in the master plate, fig. 7. Install the air ducts sloped down by 2-3° to ensure the condensate drainage.

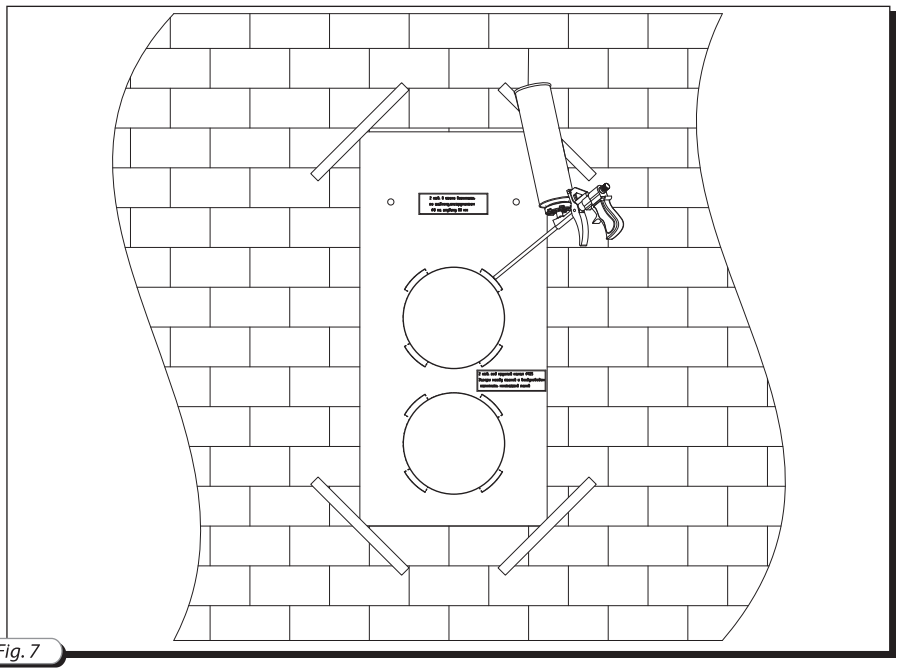

Fig. 7

6. After the mounting foam hardening (see the solidification time in the product specification, remove the master plate and cut the protruding parts of the air duct to be flush with the inner wall. On outer wall side, the air ducts must protrude by 10 mm to prevent condensate dropping on the wall.

7. Mounting sequence of the unit:

- Connect the unit spigots to the plastic air ducts as shown in fig. 9;
- Fix the unit to the wall with 5,0x50 screws (included into delivery set) by inserting those to two Ø 8 mm (5/16") holes;
- Install the heat exchanger and the front plate.

Install the outer ventilation box NB Micra 60 on the other side of the building to prevent ingress of large foreign objects into the air ducts, fig. 10. The round air ducts and the outer ventilation box are not included into the delivery set of Micra 60 unit and are available on separate order. You may use other ventilation grilles and boxes of the matching size.

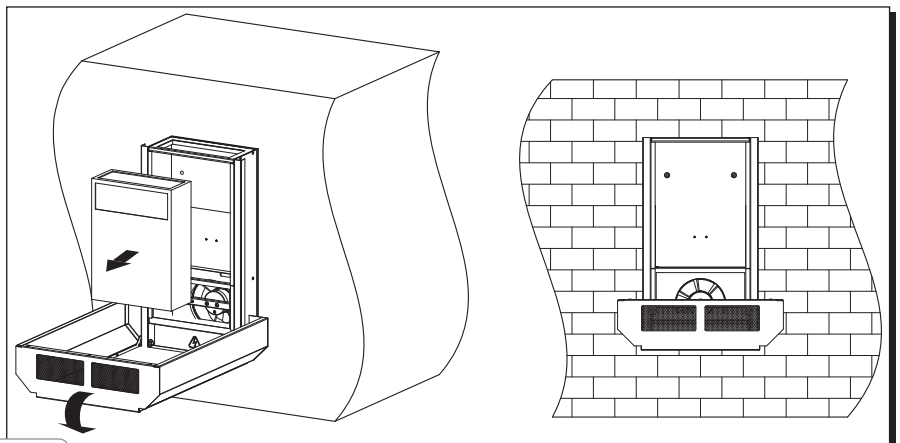

Fig. 8

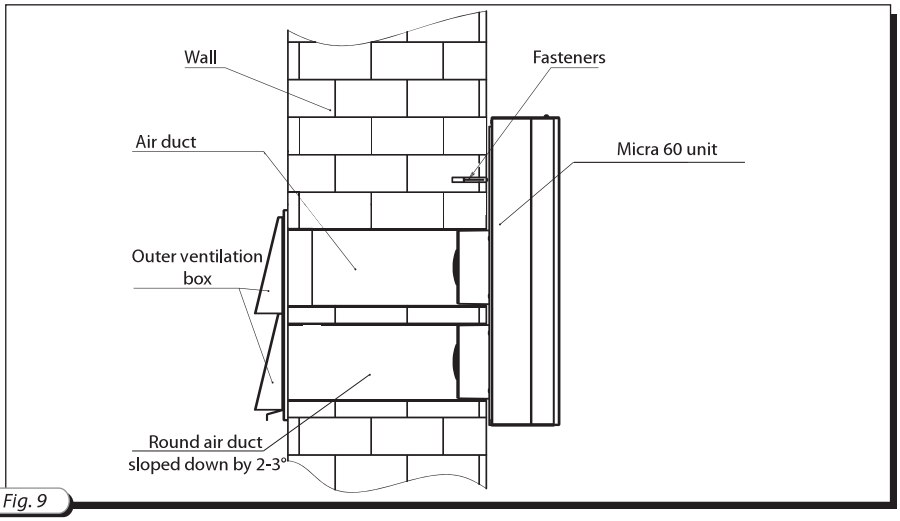

Fig. 9

MK1 Micra 60 mounting set is designed to prepare a mounting place for installation of the unit Micra 60 at general construction stage. The MK1 Micra 60 mounting set includes:

- plastic air duct Ø 125 mm, length 500 mm - 2 items;
- paper master plate - 2 items;

Mounting sequence of MK1 Micra 60 set:

1. Fix one mater plate (included into delivery set) on outer wall side with a sealing tape on required level, fig. 5.

2. Use a master plate to mark two Ø 130 (5 1/8") mm holes for the air ducts and two Ø 8 mm (0,32") holes for the dowels to fasten the unit.

3. Remove the master plate and drill through holes for the air ducts and the holes of 60 mm length (2,38") for the dowels.

4. Re-install the master plate with a sealing tape back. Fix the second master plate on outer wall side to align the air ducts with respect to each other. Fix the second master plate somewhat lower to ensure the minimum required slope by 3°. Before mounting the mater plate remove the perforated slots for the

air ducts.

5. Install the air ducts into the master plate holes designed for the air ducts, fig. 6 and seal those with a mounting foam through the technological openings in the master plate, fig. 7. Install the air ducts sloped down by 2-3° to ensure the condensate drainage.

6. After the mounting foam hardening (see the solidification time in the product specification, remove the master plate and cut the protruding parts of the air duct to be flush with the inner wall. On outer wall side, the air ducts must protrude by 10 mm to prevent condensate dropping on the wall.

MK2 Micra 60 mounting set is used for mounting of Micra 60 unit and is available upon separate order. MK2 Micra 60 mounting set includes:

- plastic air duct Ø 125 mm, length 500 mm - 2 items;
- paper master plate - 2 items;
- outer ventilation box NB Micra 60 - 1 item;
- screw and dowel 8x40 - 4 items.

Mounting sequence of MK2 Micra 60 set:

1. Fix one mater plate (included into delivery set) on outer wall side with a sealing tape on required level, fig. 5.

2. Use a master plate to mark two Ø 130 (5 1/8") mm holes for the air ducts and two Ø 8 mm (0,32") holes for the dowels to fasten the unit.

3. Remove the master plate and drill through holes for the air ducts and the holes of 60 mm length (2,38") for the dowels.

4. Re-install the master plate with a sealing tape back. Fix the second master plate on outer wall side to align the air ducts with respect to each other. Before mounting the mater plate remove the perforated slots for the air ducts.

5. Install the air ducts into the master plate holes designed for the air ducts, fig. 6 and seal those with a mounting foam through the technological openings in the master plate, fig. 7. Install the air ducts sloped down by 2-3° to ensure the condensate drainage, fig. 6.

6. After the mounting foam hardening (see the solidification time in the product specification, remove the master plate and cut the protruding parts of the air duct to be flush with the inner wall. On outer wall side, the air ducts must protrude by 10 mm to prevent condensate dropping on the wall.

7. Install the outer ventilation box NB Micra 60 on the other side of the building to prevent ingress of large foreign objects into the air ducts on other wall side, fig. 10. To install the outer box NB Micra 60, please prepare four screws and dowels 8x40 and follow the mounting operations:

- apply outer box NB Micra 60;
- mark fastening holes;
- drill four Ø 8 mm holes for 40 mm depth;
- install dowels 8x40;
- install outer box NB Micra 60;
- fix the outer box NB Micra 60 with screws.

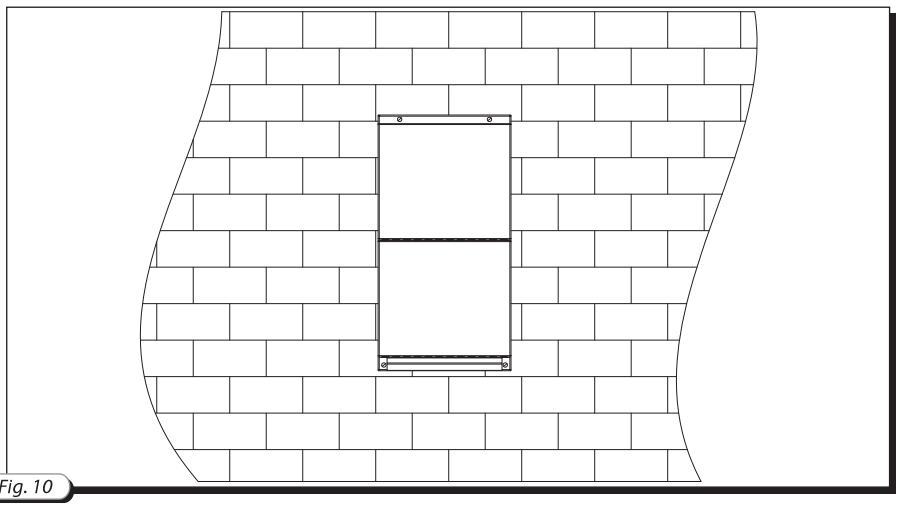

Fig. 10

CONNECTION AND CONTROL

The unit is designed for connection to single-phase ac 100…240 V / 50...60 Hz power mains with an pulser control block.

The control block VENTS P3-1-300 (fig. 8) is designed to switch the unit on / off and set three operation modes:

- 1 mode. The switch is in 1 position. Air capacity 30 m³/h (20.6 CFM), noise level 22 dBA (0.38 Sones).
- 2 mode. The switch is in 2 position. Air capacity 45 m³/h (27.4 CFM), noise level 25 dBA (0.42 Sones).
- 3 mode. The switch is in 3 position. Air capacity 60 m³/h (34.1 CFM), noise level 32 dBA (1.0 Sones).

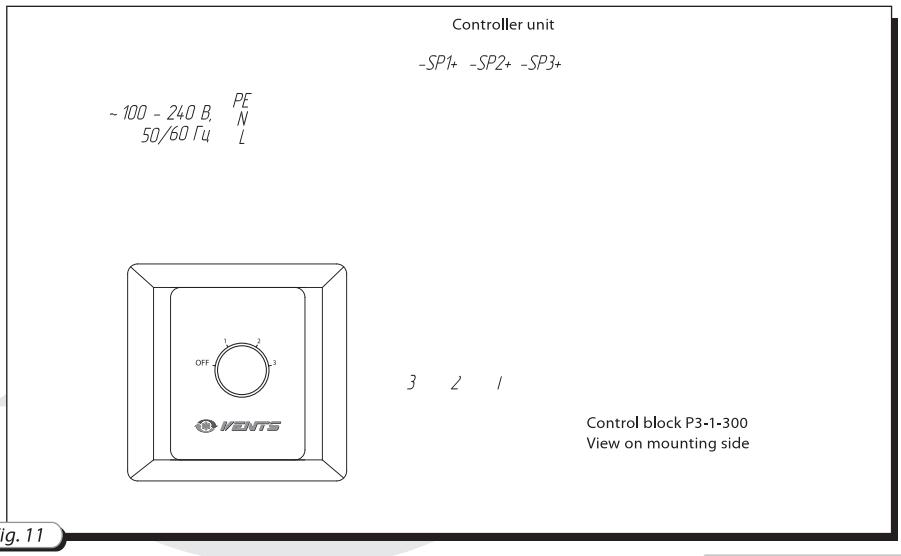

Fig. 11

The controller unit (fig. 11) is installed under the protecting panel of the unit. The unit is connected to control block via a four-cable wire of 3 m (9.8 ft.) length that is included into delivery set. Each wire must have min. section 0.25 mm2 (AWG 24). The cable length from the unit to the control block must not exceed 30 m (90.4 ft).

MAINTENANCE

Servicing of the unit is required 3-4 times per year.

Disconnect the unit from power mains prior to any maintenance operations. The unit maintenance includes regular cleaning of the unit surfaces and components from dust and filter cleaning or replacement.

To remove dust use a soft brush, cloth or compressed air. Do not use water, abrasive detergents, sharp objects and solvents. The impeller blades require cleaning once per year.

Soiled filters increase air resistance and decrease the unit performance. The filters can be cleaned with a vacuum cleaner or with running water. The filters require cleaning at least 3-4 times per year.

The filters are accessible on the front panel side (fig. 12).

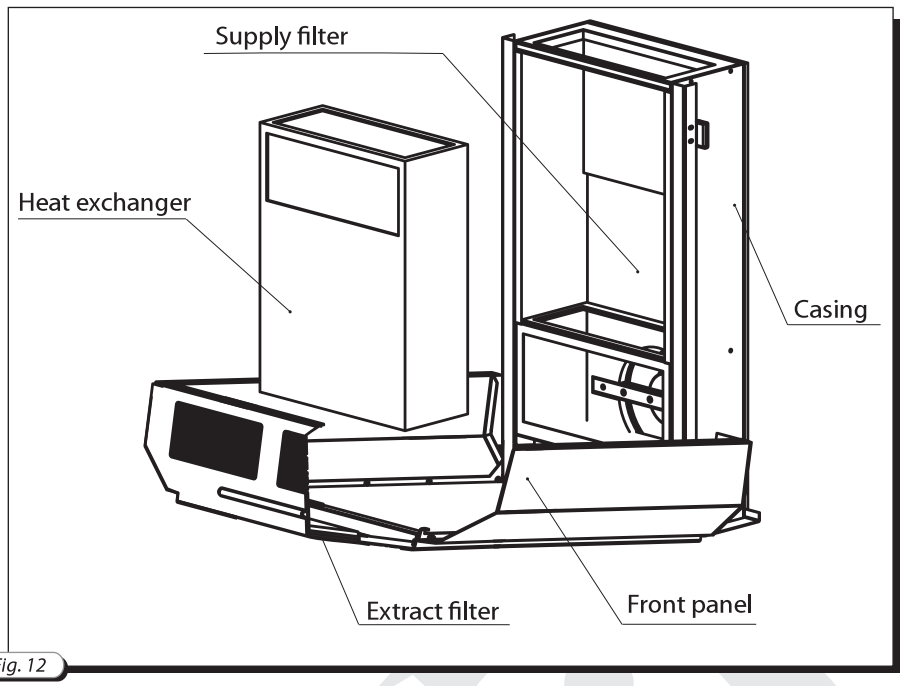

Fig. 12

To maintain high heat exchanger efficiency remember to clean the heat exchanger regularly. To clean the heat exchanger use a vacuum cleaner or flush it under running water.

FAULT HANDLING

Faults and fault handling

Problem	Possible reasons	Troubleshooting
The fan(s) do(es) not start running.	Power supply is off.	Make sure power supply is connected, otherwise troubleshoot the connection error.
Cold supply air.	Extract filter is clogged.	Clean or replace the extract filter.
	The heat exchanger is frosted.	Check the heat exchanger for frosting. Shut the unit off if required and let ice melt.
Low air capacity.	The filters, fans or heat exchanger are clogged.	Clean or replace the extract filters; clean the fans and the heat exchanger.
	The air ducts or the outer box are soiled or mechanically damaged.	Clean or replace the air ducts or the outer box if those are damaged.
Noise, vibration	The impeller blades are clogged.	Clean the impeller blades.
	The screw tightening is low.	Tighten the fastening screws.

STORAGE AND TRANSPORTATION RULES

Store the unit in the manufacturer's original packing box in a dry ventilated premise with the temperature range from +5 °C(41 °F) up to +40 °C(104 °F) and relative humidity less than 80% (at 25° C (77°F))

Use any vehicle types to transport the unit provided that it is protected against mechanical and weather damage. Use hoist machinery for handling and storage operations to prevent falling or excessive oscillation.

MANUFACTURER'S WARRANTY

Manufacturer hereby guarantees rated performance of the unit within 2 years since the date of its sale in accordance to the rules of transportation, storage, assembling and operation. In case of no confirmation of sales date the warranty period is calculated from the production date.

In case of any failures in operation of the unit during the warranty period the manufacturer accepts any claims from the Customer if the technical certificate with the description of the malfunction is provided.

Any unauthorized modifications of the electric connections are not allowed and will void the warranty service.

Both warranty and post-warranty services are provided at the manufacturing facility. Submit the warranty card with a stamp of the trade company and the user's manual for warranty service.

WARRANTY IS VALID ONLY WITH THIS MANUAL AND FILLED CONNECTION CERTIFICATE.

The MANUFACTURER is not responsible for any mechanical or physical damages resulting from the manual requirements violence, the unit misuse or gross mechanical effect. Fulfil the requirements set in the user's manual to ensure reliable operation and long service life of the unit.

ACCEPTANCE CERTIFICATE

The single room air handling unit with heat recovery Micra 60 is recognized as serviceable and compliant with the technical parameters.
We hereby declare that the product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This certificate is issued following test carried out on samples of the product referred to above.

Stamp of the acceptance inspector Date of production _____

Sold by
name of the vendor, stamp of the retailer _____

_____

Sale date _____

CONNECTION CERTIFICATE

This is to certify that the single room air handling unit Micra 60 has been connected to power mains pursuant to the requirements stated in this user's operation manual by the electrical engineer:

Company: _____

Name_____

Date_____Signature_____

_____

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WARRANTY CARD

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